

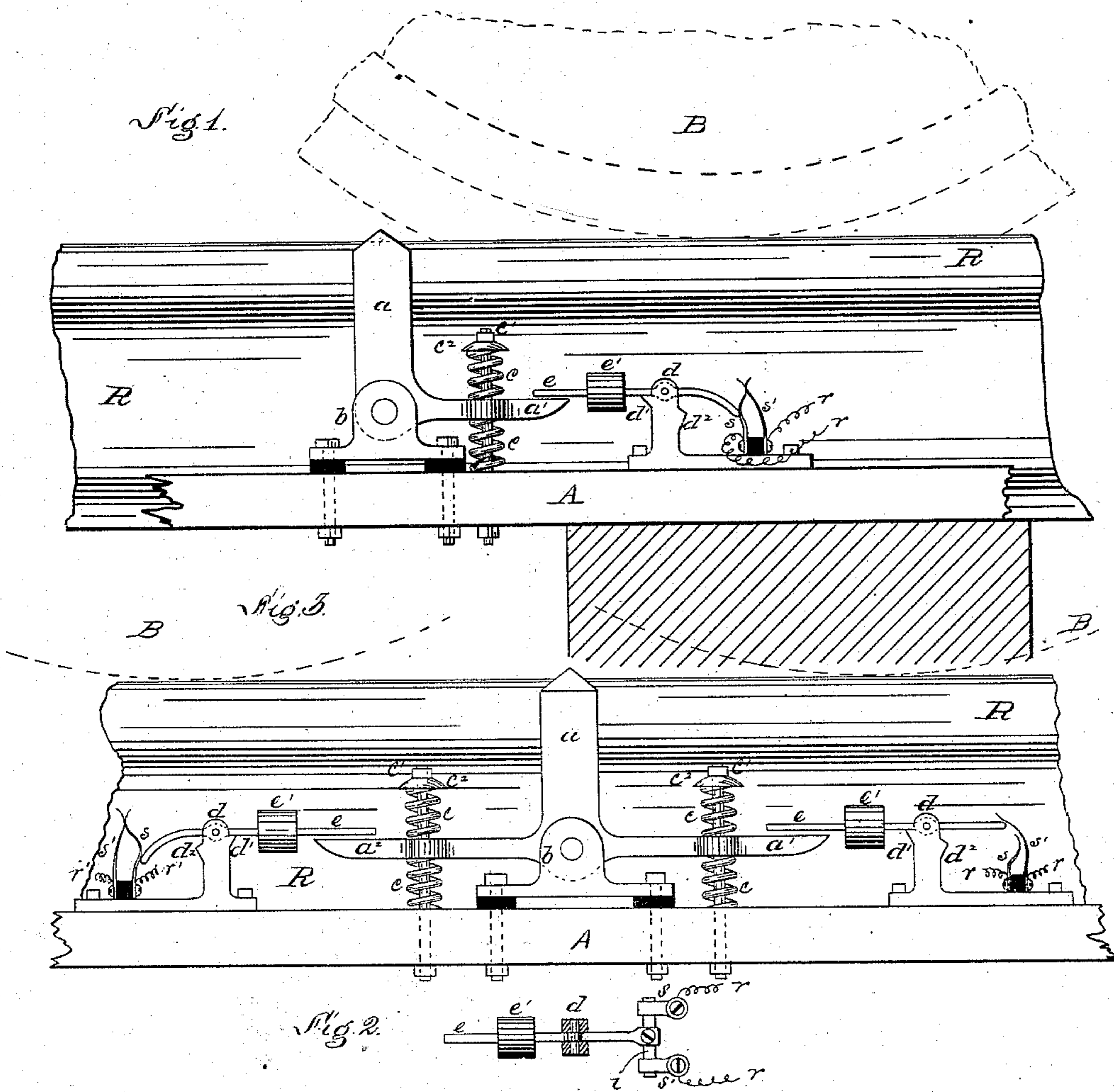
(No Model.)

C. A. SCOTT.

ELECTRIC CIRCUIT TRACK INSTRUMENT.

No. 283,152.

Patented Aug. 14, 1883.



Witnesses.

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UNITED STATES PATENT OFFICE.

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ELECTRIC-CIRCUIT TRACK-INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 283,152, dated August 14, 1883.

Application filed April 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. SCOTT, a citizen of the United States, residing at Boston, county of Suffolk, State of Massachusetts, have invented or discovered a new and useful Improvement in Electric-Circuit Track-Instruments; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 represents in side elevation my improved track-instrument for making and breaking electric circuits applied to a railway-track, and Fig. 2 illustrates a modification thereof.

My present invention relates to a track-instrument of that class in which the train itself is the active or operative agent in operating the electric-circuit make-and-break mechanism. While not limiting myself as to the uses to which it may be applied, I have especially designed it for use in connection with electric circuits for setting or shifting signals, operating annunciators or bell-ringers, or for operating the electric locks of signal, switch, and lock-bolt levers or their connections, as the same are or may be organized for use on or along and in connection with railway-lines.

At the proper point in the track, and in close proximity to one of the rails *R* of a track, and on any suitable pedestal, *A*, I arrange a vertical post, *a*, with its upper end in position to be engaged by the car-wheels *B* as they pass along, moving, say, from the right. This post is pivoted in an insulated support, *b*, and it has a tail-piece, *a'*, extending out somewhat like one of the arms of a bell-crank or bent lever, which the device *a a'* as a whole resembles. This device is held in its normal position by means of two springs, *c c*, arranged on a guide-bolt, *c'*, and the tension of which is regulated by a screw-nut and washer, *c''*, where- by the springs bearing on the arm *a'*, one above and the other beneath, (or, if so preferred, acting horizontally on the front and rear edges of the post *a*,) may keep the post *a* in position to be engaged by the wheels and return it to position after a wheel or wheels have passed. The end of the arm *a'* has a path of motion

when moved such that it will engage the end of a tilting lever, *e*, pivoted to a post, *d*. The lever *e* has a counter-weight, *e'*, and its possible range of movement is limited by suitable stops, as at *d' d''*. Two contacts, *s s'*, are employed, of which one, at least, is movable, which in this case, as illustrated, is the spring-contact *s*. These contacts are insulated from each other except at the contact point or points, and they constitute the terminals of the line-wires *r r*, which lead to an electro-magnet properly arranged in connection with appropriate mechanism to do the work desired. The weight *e'* will suffice to keep the terminals *s s'* normally in contact, and so keep the circuit closed; but when a wheel, *B*, tilts or rocks the post *a* to the left, the free end of the arm *a'* will engage the adjacent end of the lever *e*, raise it, and depress the opposite end, so as to clear or move back from the movable terminal *s*, and allow the latter to spring away from and break contact with the other terminal, *s'*, and thereby break the circuit through wires *r r*. This circuit is again closed by the action of the weight *e'*; but I do not limit myself to the use of the terminals *s s'* of the form shown, as the free end of the lever *e* may be caused to make and break the circuit with other forms or constructions of terminals, fixed or movable, by moving one into or out of contact with the other when one or both are movable, or by moving into and out of the circuit any suitable insulated conductor when the terminals are fixed; and to illustrate the latter construction I have shown in Fig. 2 a top or plan view of the lever carrying an insulated contact-piece, *i*, preferably of spring metal, and adapted in one position to close a circuit through two fixed terminals, *s s'*; also, by such reversal of the connections as will come within the skill of the constructor, the apparatus may be arranged to operate in like manner with a normally open or broken circuit, and such circuit be closed by the action of the wheels on the post *a*.

In further illustration of the present invention, I have shown in Fig. 3 a double-acting track-instrument embracing substantially the same features of construction, but with the addition of another arm or tail-piece, *a''*, which, in connection with devices like those already

described, and marked by the same letters of reference, operates in the manner set forth, but so as to make or break another circuit through the wires $r' r'$. In the organization
 5 and with the arrangement of the contacts here shown a train going from the right will close instead of break the circuit through the wires $r r$; but as the arm a^2 , in such case, will move down, no effect will be produced as regards
 10 the circuit through the wires $r' r'$; but with a train moving the other way the circuit through wires $r' r'$ will be broken and the other circuit through the wires $r r$ will be unaffected; but the contacts may be arranged so that either or
 15 both circuits shall be normally open or normally closed; or either tail-piece a' or a^2 , or both, if so preferred, may be arranged above the free end of the corresponding lever, e , so as to reverse the action described; or one may be
 20 above and one below, so that both circuits will be simultaneously changed; or the other end of each or either tail-piece $a' a^2$ may engage the free end of its lever e both above and below, as may be preferred.

25 Either of the circuits referred to may lead to any suitable device or mechanism for actuating a visual or audible signal or a lock, or for other similar use; but separate applications will be made for apparatus so organized.
 30 One set of springs, $c c$, will ordinarily be enough to restore the part a to a vertical position, or two sets, as shown, may be used.

I am aware of the construction of circuit-closer shown and described in English Patent
 35 No. 1,375 of 1878, and disclaim the same.

I claim herein as my invention—

1. A bent-lever mechanism, $a a'$, pivoted in position adjacent to a track-rail, with the end of one arm in the path of the car-wheels, so as
 40 to be engaged thereby, and the end of the other arm arranged to operate, when moved, a circuit-changing mechanism, in combination with springs $c c$, one on each side of one arm of the wheel-actuated lever, substantially as
 45 set forth.

2. The pivoted bent-lever mechanism $a a'$, held in and returned to normal position by springs $c c$, in combination with a weighted and pivoted circuit-changing lever, e , and stops $d' d^2$, substantially as set forth. 50

3. The bent-lever mechanism having a vertical arm, $a a$, pivoted in position adjacent to a track-rail, and with its upwardly-projecting end arranged in the path of a car-wheel, and having arms $a' a^2$, in combination with springs
 55 $c c$ and two circuit-changing levers, $e e$, arranged to operate the terminals of different circuits, substantially as set forth.

4. The combination of a pivoted bent lever, $a a'$, springs $c c'$, counterweighted lever e , stops
 60 $d' d^2$, and terminals $s s$, substantially as set forth.

5. An electric-circuit make-and-break apparatus having, in combination, the vertical arm
 65 a of a bent-lever mechanism, pivoted in position adjacent to a track-rail and adapted to be moved in both directions under train action; two arms extending therefrom, one in each direction, and two electric-circuit make-and-break mechanisms arranged for operation, one
 70 by one of said arms, when the train moves one way, without affecting the electrical condition of the opposite circuit, and the other make-and-break mechanism being arranged for operation by the other of said arms, when the
 75 train moves in the opposite direction, without affecting the electrical condition of the other circuit, and means for restoring the vertical arm to proper position to be operated by a train moving either way, substantially as set
 80 forth.

In testimony whereof I have hereunto set my hand.

CHARLES A. SCOTT.

Witnesses:

JOHN V. YOUNG,
 PATRICK JAMES LANE.